Quantum magnetism in low-dimensional materials

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Basic Tasks

1. Study magnetic properties of **NOVEL MATERIALS** with emphasis on **NEUTRON SCATTERING**, **RAMAN SCATTERING and NMR experiments.**

2. To develop, establish and confirm new concepts in many-body physics. such as: FRACTIONAL EXCITATIONS and SPIN-LIQUIDS

3. Further develop COMPUTATIONAL METHODS for condensed matter physics

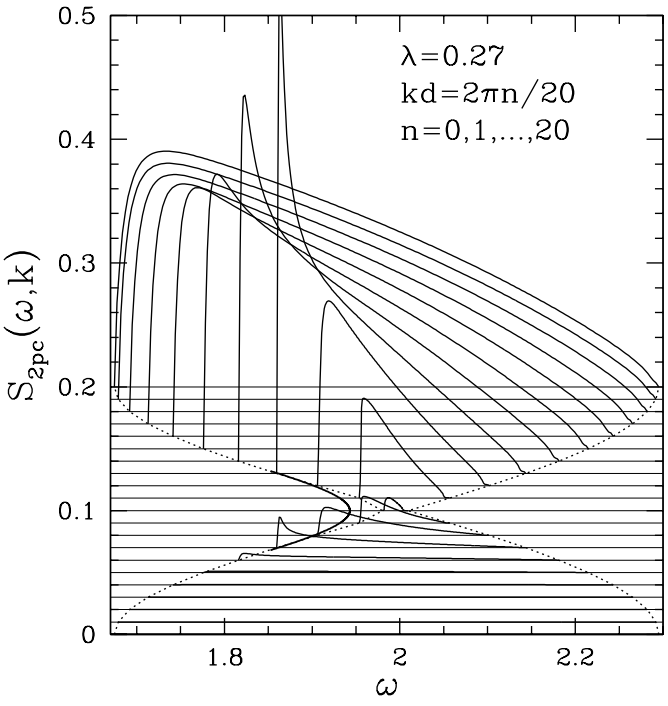

FIG. 1: High-accuracy calculations of frequency and wave-vector resolved NEUTRON SCATTERING cross-sections from two-particle excitations in a model magnetic system (For more details see W. Zheng, C. J. Hamer and R. R. P. Singh Phys. Rev. Lett. **91**, 037206 (2003); Phys. Rev. B **68**, 214408 (2003).